

Work Order ID 78079

78079

Page 1

December-28-11 3:25:22 PM

Item ID: D350-636-012

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Skidtube RH

Stop *NS2*

Start Date: 28/12/2011 Start Qty: 1.00

1

Cust Item ID:

Required Date: 12/01/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: MLT

Date: 11/12/28

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D2750

F

D3492

C

100

0.00

100

DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy blue file and type labels per PPP D350-636-012 CHG 006

8/12/02/03

MLT 12-2-3

B78079 RH

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Run Start *NR1*

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Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110		0.00							
110	Skidtubes								
Skidtubes	Memo	0.00							
Skidtubes	1- Pick D2600-3 Bent								
	2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg D2750								
	3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500", deburr.								
	4- Locate DT8329 off of blade fitting bolt holes and drill pilot holes for blade fitting								
	5- Drill only two fwd step holes using DT9616. Ensure proper positioning.								
	6- Drill pilot holes as per Dwg D2750 sheet 4 (D2750-2 details). Drill using drill Jig DT8150 & DT8863A for first side only DT8863B for second side (detail K)								
	7- Clecko DT8863B on second side of tube and drill pilot holes for detail B. ***SECOND SIDE***								
	8-Open up holes for Detail B to 0.375" (4 holes per side) and blade fitting location holes to 0.500" (total of 4 holes per side) as per dwg D2750. Open up holes for ground handling and detail L to 0.500" (8 holes per side)								
	9-Drill pilot holes for wearplates as per Dwg D2750 using DT8108 open to 0.297".								
	10-Open up holes of Detail A to 0.297" (total of 2 holes per side)								

Handwritten: TW

Handwritten: 12-1-9

Handwritten: 12/01/14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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 Required Date: 12/01/2012 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
	11-Weld D2744 Cap as per Dwg D2750 and QSI 004. Fill grooves in bend left from bending as per QSI 004 A/R Aluminum Rod batch: <i>M119712 BE 12-01-16</i>								
	12-Grind welds flush as per Dwg D2750		<i>SAD</i>	<i>12-01-19</i>					
120 *120* QC Quality Control	QC10- Inspect visual per QSI004- ground welds Memo	0.00 0.00		<i>Sizbuis</i>					
130 *130* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00		<i>Sizbuis</i>					

Dart Aerospace Ltd

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Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Chemical Conversion Coat per QSI005 4.1	0.00							
140									
HandFinish	Memo	0.00							
Hand Finishing									
150	QC3- Inspect Part Finish	0.00							
150									
QC	Memo	0.00							
Quality Control									

① ~~0~~ CE/MD 12-1-20

1 ~~0~~ BE 12-01-20

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Skidtubes	0.00							
160									
Skidtubes	Memo	0.00							
Skidtubes	1-Open up holes of Detail L and ground handling to 0.625" (total of 8 holes per side) as per dwg D2750.								
	2-Open up holes of Detail K to 0.750" (total of 4 holes per side) as per dwg D2750.								
	3-Open float holes to .500" (4 per Side)								
	4-Chamfer holes of Detail K, L, ground handling and float holes per dwg D2750 (welding instructions on sheet 9)								
	5-Deburr and blow out all chips from inside of tube								
	6-Prepare tube for welding, remove alodine as required.								
	7-Bond web D2739 in place as per QSI 015 A/R Sikaflex-291 batch: <u>119508</u> exp. date: <u>12/08/13</u>								
	8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D2750 & QSI004 (welding instructions on sheet 9) A/R Aluminum Rod batch: <u>M119712</u>								
	9- At section AP-AP drill out x-bolt spacer to 0.404"								
	10-Grind welds flush as per Dwg D2750								
	11-Spot face ground handling holes section (total of 4 places per side) as per								

BB 12/01/20

OK 12/01/20

BB 12-01-23

BB 12/01/25

W/O:		WORK ORDER CHANGES					
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Start Date: 28/12/2011 Start Qty: 1.00

1

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Required Date: 12/01/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

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Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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dwg D2750

12-Deburr holes

BB 12/01/25

170

QC10- Inspect visual per QSI004- ground welds

0.00

170

S 12/01/25

QC

Memo

0.00

Quality Control

180

QC5- Inspect part completeness to step on W/O

0.00

180

S 12/01/25

QC

Memo

0.00

Quality Control

W/O:		WORK ORDER CHANGES					
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Start Date: 28/12/2011 Start Qty: 1.00

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Cust Item ID:

Required Date: 12/01/2012 Req'd Qty: 1.00

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

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Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

190 Pressure Wash per QSI005 4.3

0.00

190

HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

① *[Signature]* CF 12-1-27

200 White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum 0.00

200

Powdercoat

Powder Coating

Memo

0.00

START TIME: 10:00

OVEN TEMPERATURE: 320 °F

FINISH TIME: 10:30

210

QC3- Inspect Part Finish

0.00

210

QC

Quality Control

Memo

0.00

Inspect for foreign object per QSI 024

[Signature] M- 12/01/27

IRH of M 12/02/01

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							
230	HandFinishing								
HandFinish	Memo	0.00							
Hand Finishing	<div>1-Install inserts as per dwg D2750</div> <div>2-Inspect for Foreign Objects</div> <div>3-Spray inside of tube with "LPS-3" batch: <u>NIA</u></div> <div>4-Install blade fitting D3488-042, wearshoes and ground handling hardware as per dwg D2750 SIKA FLEX 241 BATCH: <u>M119508</u> EXP DATE: <u>12/08</u></div> <div>5-assemble o'ring to plug as per dwg D3492 and apply o'ring lube A/R 55-o'ring lube batch: <u>M110348</u></div> <div>6-Coat all exposed fasteners with "LPS Procyon" batch: <u>M114596</u></div>								

1 0 11/12/11

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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
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Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Item Name: Skidtube RH

*** 1 ***

Cust Item ID:

*** 1 ***

Customer:

Reference:

Run Start *NR1*

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

240 QC5- Inspect part completeness to step on W/O

0.00

240

0.00

QC

Memo

Quality Control

250	Pick Kit	0.00
-----	----------	------

0.00

250

0.00

Packaging

Memo

Packaging

260	QC4- 100% Inspect kits for completeness	0.00
-----	---	------

0.00

260

0.00

QC

Memo

Quality Control

W/O:		WORK ORDER CHANGES					
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 Required Date: 12/01/2012 Req'd Qty: 1.00 ***1*** Customer:
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
270	Packaging								
Packaging	Memo	0.00							
Packaging	Package as per PPP D350-636-012								
280		0.00							
280	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

44/46 0

MCS 12/02/04
 ME
 12-02-06

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

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78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:102.09.25Rearranged procedure stepsKJ
 IPP Rev:J 06-03-29 As per Rev D EC
 IPP Rev:K 06-07-13 As per dsi9343 EC
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC
 IPP Rev:M 08-04-22 update steps 4,13 DD verified by:EC
 IPP Rev:N 08-09-23 revF as per dwg DD verified by:ec IPP Rev:O
 10.06.22 revise seq110 DD verf:EC IPP Rev:P 10.10.01 as
 per IIN revH DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2600-3-BENT		Manufactured	No			110	Each	26.0000	1	1			

D2600-3-BENT

Extrusion Bent

**

Location	Loc Qty	Loc Code
LG	26	
66875	7	
73253	1	
75021	1	
75022	1	
75023	1	
77623	15	

D2744

Manufactured No

110

Each

34.0000

1

D2744

Cap

**

Location	Loc Qty	Loc Code
LG002	34	
62715	1	
70881	12	
71861	21	

JW 12-1-9

BL-2-01-10

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D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

D2739

Manufactured No

160

Each

4.0000

1

1

D2739

350 I Beam

78420

**

(1)

DL 12/01/20

LocationLoc QtyLoc Code

LG

4

72155

1

76987

3

D2743

Manufactured No

160

Each

169.0000

8

8

D2743

Crossbolt Spacer

**

BE 12-01-23

LocationLoc QtyLoc Code

LG001

169

67766

4

68251

3

73403

64

74445

92

76141

6

8

D3490-3

Manufactured No

160

Each

22.0000

4

4

D3490-3

Cross Bolt Spacer

**

BE 12-01-23
B 77567 #4LocationLoc QtyLoc Code

LG001

22

74877

22

D3490-1

Manufactured No

160

Each

70.0000

4

4

D3490-1

Cross Bolt Spacer

**

BE 12-01-23

LocationLoc QtyLoc Code

LG001

70

62450

2

67773

4

74875

24

77042

40

4

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Shop Packet Print

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D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

D3631-1 Manufactured No

230 Each 351.0000 8 8

D3631-1

Washer

**

u 12/6/11

Location

Loc Qty

Loc Code

ST072

351

68062

2

75548

349

✓8

D3791-1 Manufactured No

230 Each 21.0000 1 1

D3791-1

Wearplate

**

u 12/02/11

Location

Loc Qty

Loc Code

FP002

21

62239

2

74598

3

75041

16

X1

D3793-3 Manufactured No

230 Each 14.0000 1 1

D3793-3

Wearshoe

**

u 12/02/11

Location

Loc Qty

Loc Code

FP001

14

74528

2

75043

12

X1

W/O:		WORK ORDER CHANGES					
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D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

MS21043-6

Purchased

No

230

Each

377.0000

4

4

MS21043-6

**

NUT

u 12/02/01

LocationLoc QtyLoc Code

FG

20

103693

20

ST301

357

112314

147

117887

10

118384

200

x4

D3794-1

Manufactured

No

230

Each

31.0000

1

1

D3794-1

**

Gasket

u 12/02/01

LocationLoc QtyLoc Code

FP002

31

74594

3

75042

28

v1

NAS1611-010

Purchased

No

230

Each

87.0000

8

8

NAS1611-010

**

O-RING

M 120121 (x8) u 12/02/01

LocationLoc QtyLoc Code

FP001

87

110915

14

117460

8

118077

1

118612

3

119438

47

119623

14

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Page 5

December-28-11 3:25:27 PM

Work Order ID: 78079

78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

D2741

Manufactured No

250

Each

18.0000

1

1

**

71856

[Signature]

D2741

Blade, 350 Skidtube

Location

Loc Qty

Loc Code

ST

-10

ST466

28

71856

18

71

NAS1515H3L

Purchased

No

230

Each

183.0000

4

4

**

12/02/01

***NAS1515H3L ***

WASHER

Location

Loc Qty

Loc Code

FG

40

102472

40

ST277

143

118686

3

119438

40

120072

100

74

NAS1611-013

Purchased

No

230

Each

96.0000

8

8

**

11/20/11 (x8) 12/02/01

NAS1611-013

O-RING

Location

Loc Qty

Loc Code

FP001

96

116582

5

117291

2

117887

53

119623

36

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 6

Work Order ID: 78079

78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

AN3C6A

Purchased

No

230

Each

226.0000

4

4

AN3C6A

BOLT

**

4

12/02/01

Location

Loc Qty

Loc Code

FP001

1

111982

1

ST351

225

111982

2

116419

23

116549

2

116704

12

117619

10

117688

1

117872

5

118422

13

119449

100

119749

57

4

NAS1149C0832R

Purchased

No

230

Each

320.0000

1

1

NAS1149C0832R

WASHER

**

1

12/02/01

Location

Loc Qty

Loc Code

ST297

320

114915

320

4

D3536-25

Manufactured

No

230

Each

19.0000

1

1

D3536-25

Gasket

**

1

12/02/01

Location

Loc Qty

Loc Code

FP002

19

75039

19

4

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

December-28-11 3:25:27 PM

Work Order ID: 78079

78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

D3794-3

Manufactured No

230

Each

13.0000

1

1

D3794-3

Gasket

**

B 78895C x1 MU 12/02/02

Location

Loc Qty

Loc Code

FP002

13

74530

2

74596

11

AN3C5A

Purchased

No

230

Each

898.0000

34

34

AN3C5A

Bolt

**

MU 12/02/01

Location

Loc Qty

Loc Code

FP001

7

115835

7

ST350

891

116419

28

117343

17

117764

49

117872

2

119127

500

119749

295

x34

D3537-1

Manufactured

No

230

Each

26.0000

3

3

D3537-1

Wearpad

**

B 77560 (x3) MU 12/02/01

Location

Loc Qty

Loc Code

FP002

26

69817

5

74867

21

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

December-28-11 3:25:27 PM

Work Order ID: 78079

78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

D3535-25

Manufactured No

230

Each

17.0000

1

1

D3535-25

Wearshoe

**

12/02/01

Location

Loc Qty

Loc Code

FP001

17

62233

1

74592

4

75040

12

D3492-3

Manufactured No

230

Each

29.0000

8

8

D3492-3

Plug

**

1377039 (x8) 12/02/01

Location

Loc Qty

Loc Code

FP002

29

74447

17

74871

12

AN960C10L

NAS1149C0332

Purchased No

230

Each

0.0000

38

38

***AN960C10L ***

washer

**

11119736 (x38) 12/02/01

D3488-042

Manufactured No

230

Each

14.0000

1

1

D3488-042

Blade Fitting Assembly, RH

**

1377015 (x1) 12/02/01

Location

Loc Qty

Loc Code

FP002

14

62003

1

69904

1

71883

2

75068

10

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

December-28-11 3:25:27 PM

Page 9

Work Order ID: 78079

78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

ALS4-1032-225

Purchased

No

230

Each

1,132.000

38

38

AI S4-1032-225

Insert

**

U 12/02/01

Location

Loc Qty

Loc Code

ST281

1132

108696

199

110768

62

118386

803

118966

68

x38

D3492-1

Manufactured

No

230

Each

110.0000

8

8

D3492-1

Plug

**

U 12/02/01

Location

Loc Qty

Loc Code

FP002

110

69531

8

74444

2

76235

100

x8

D3793-1

Manufactured

No

230

Each

10.0000

1

1

D3793-1

Wearshoe

**

B 77029 (x1) U 12/02/01

Location

Loc Qty

Loc Code

FP001

10

75038

10

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

December-28-11 3:25:27 PM

Page 10

Work Order ID: 78079

78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

AN8C35A

Purchased

No

230

Each

81.0000

1

1

AN8C35A

BOLT

**

u 12/02/01

Location

Loc Qty

Loc Code

FP002

80

115960

1

117834

23

118286

56

ST346

1

114442

0

115188

0

115960

1

MS21083C8

Purchased

No

230

Each

42.0000

1

1

MS21083C8

NUT

**

u 12/02/01

Location

Loc Qty

Loc Code

FP002

1

115884

1

ST303

41

115884

0

118077

1

118614

7

119309

2

119436

25

119638

6

D2745

Manufactured

No

230

Each

89.0000

8

8

D2745

Bushing

**

u 12/02/01

Location

Loc Qty

Loc Code

FP001

89

69529

1

76142

88

u 12/02/01

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

December-28-11 3:25:28 PM

Page 11

Work Order ID: 78079

78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

AN6C44A

Purchased

No

230

Each

35.0000

4

4

AN6C44A

BOLT

**

11/20/465 (x4) All 12/02/11

Location

Loc Qty

Loc Code

FG

2

103964

2

ST343

33

118985

3

119125

30

D3532-1

Manufactured

No

250

Each

22.0000

2

2

D3532-1

Spacer

**

Location

Loc Qty

Loc Code

ST065

22

74880

22

MS21083C8

Purchased

No

250

Each

42.0000

2

2

MS21083C8

NUT

**

79880
12/01/12 10/12/12

Location

Loc Qty

Loc Code

FP002

1

115884

1

ST303

41

115884

0

118077

1

118614

7

119309

2

119436

25

119638

6

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 12

Work Order ID: 78079

78079

Parent Item: D350-636-012

D350-636-012

Parent Item Name: Skidtube RH

Start Date: 28/12/2011

Required Date: 12/01/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0863J

Purchased

No

250

Each

161.0000

2

2

S *NAS1149D0863.I*
WASHER

**

118078

Location

Loc Qty

Loc Code

ST298

161

118078

61

119307

100

D3493-1

Manufactured

No

250

Each

17.0000

2

2

S *D3493-1*
Washer

**

77573

Location

Loc Qty

Loc Code

ST062

17

70697

2

76237

15

AN8C21A

Purchased

No

250

Each

31.0000

2

2

S *AN8C21A*
BOLT

**

77573

Location

Loc Qty

Loc Code

ST343

31

118758

5

119530

26

119030

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D2750-041	350 SKIDTUBE ASSEMBLY, LH
	X			D2750-042	350 SKIDTUBE ASSEMBLY, RH
		X		D2750-043	350 SKIDTUBE ASSEMBLY, LH
			X	D2750-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D2750-1	SKIDTUBE WELDMENT, LH
	1			D2750-2	SKIDTUBE WELDMENT, RH
		1		D2750-3	SKIDTUBE WELDMENT, LH
			1	D2750-4	SKIDTUBE WELDMENT, RH
1		1		D3488-041	BLADE FITTING, LH
	1		1	D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
1	1	1	1	D3535-25	WEARSHOE
1	1	1	1	D3536-25	GASKET
3	3	3	3	D3537-1	WEARPAD
8	8	8	8	D3631-1	WASHER
1	1	1	1	D3791-1	WEARPLATE
1	1	1	1	D3793-1	WEARSHOE
1	1	1	1	D3793-3	WEARSHOE
1	1	1	1	D3794-1	GASKET
1	1	1	1	D3794-3	GASKET
38	38	38	38	ALS4-1032-225	INSERT (OR ALS7-1032-225, AKS4-1032-225, AELS-1032-225)
34	34	34	34	AN3C5A	BOLT
4	4	4	4	AN3C6A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
38	38	38	38	AN960C10L	WASHER
1	1	1	1	AN960C816L	WASHER
4	4	4	4	MS21043-8	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

GENERAL NOTES:

- MATERIAL: MAKE D2750-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- FINISH:
ACID ETCH, ALONDE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: D2750-041/-042/-043/-044 = 26.5 LBS
- WELD PER DART QSI 004
- INSTALL ALS4-1032-225 INSERTS AFTER FINISH AS INDICATED. DRILL 'F' SIZE HOLES ($\phi 0.297$) FOR WEARSHOE INSERTS
- FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
MINIMUM YIELD TENSILE STRENGTH = 35 KSI
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.
COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF
POWDER COATING WITH MEK DEGREASER.
- SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

SHOP COPY
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UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 7-8079-465
11/12/28

RELEASED

F	INCORPORATE DSI 9413; QTY (3) D3537-1 WAS QTY (5) (ZN C8-1); D3791-1/-3 REPLACES D3535-13/-35 (ZN C8-1); D3794-1/-3 REPLACES D3536-13/-35 (ZN B8-1); ADD D3791-1 (ZN C8-1); WEARSHOE HOLES UNDER FWD/AFT SADDLE REMOVED (8 PL). WEARSHOE HARDWARE QTY UPDATED (ZN B8-1); D3488-041/-042 HARDWARE UPDATED (ZN C1-8, 9, 10, 11); ADD NOTE 12 AND 13 (ZN A6-1); REASON: REF. NCR 08-043	PH	08.07.16
E	CHANGE TO STAINLESS STEEL WEARPLATES; ADD RUBBER GASKETS; CHANGE INSERTS; ADD D3631-1; REMOVE QTY (38) NAS1515H3L; REMOVE QTY (10) NAS1515H8L; REMOVE D2741; QTY (2) AN960C816; REMOVE QTY (2) MS21083C8	CB	07.05.17
D	ADD HOLES AND SPACERS FOR APICAL FLOATS; INCORPORATE DEO 9133/9157	PH	06.01.05
C	ADD D2750-3/D2750-4; INCORPORATE D2738 AND D2740	CP	98.11.18
B	CHANGE MS24694-S293 TO AN8-16A	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
REV.	DESCRIPTION	BY	DATE
DESIGN	PA	DART AEROSPACE USA, INC.	
DRAWN	PA	PORT HADLOCK, WA	
CHECKED	AS	DRAWING NO.	REV. F
MFG. APPR.	AS	D2750	SHEET 1 OF 11
APPROVED	AS	TITLE	SCALE
DE APPR.	AS	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

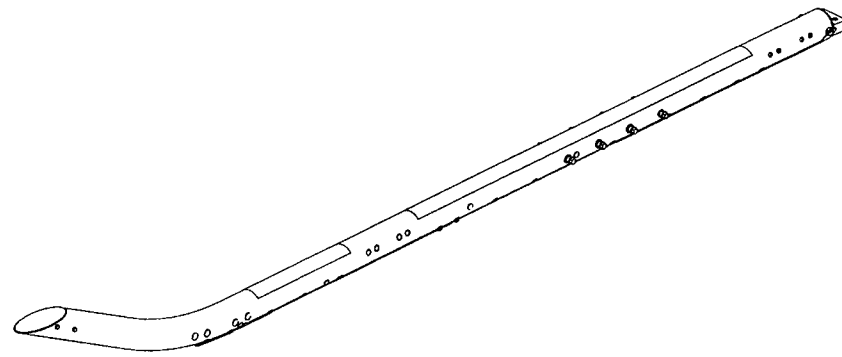
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

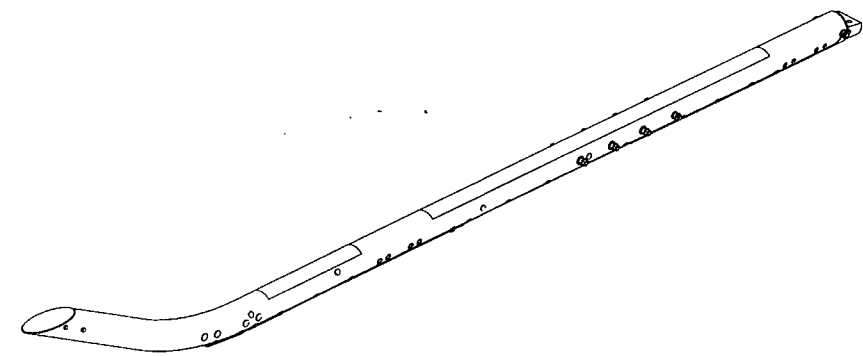
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

78079



D2750-041 350 SKIDTUBE ASSEMBLY, LH



D2750-042 350 SKIDTUBE ASSEMBLY, RH

RELEASED
28 JAN 1971

DESIGN	PC	DART AEROSPACE USA, INC.	
DRAWN	AV	PORT HADLOCK, WA	
CHECKED	JA	DRAWING NO.	REV. F
MFG. APPR.	MA	D2750	SHEET 2 OF 11
APPROVED	MP	TITLE	SCALE
DE APPR.	MA	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	<small>COPYRIGHT © 1998 BY DART AEROSPACE USA, INC.</small> <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

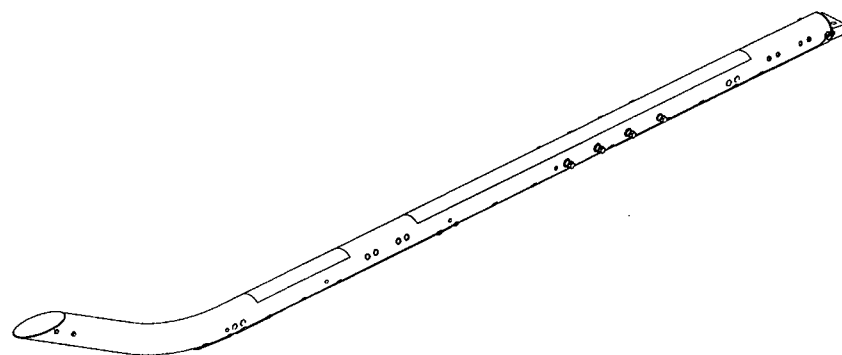
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

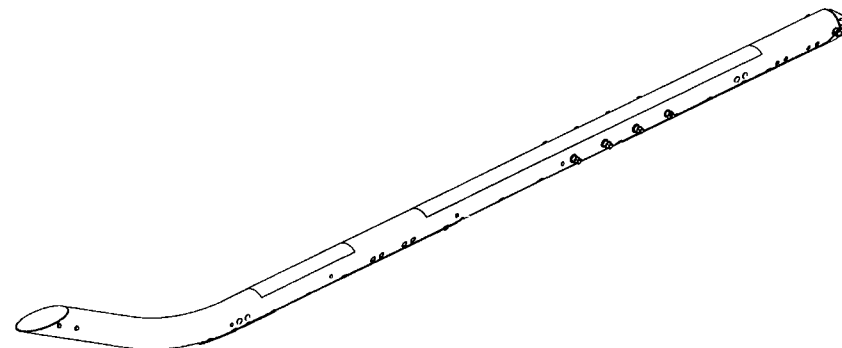
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

78079



D2750-043 350 SKIDTUBE ASSEMBLY, LH



D2750-044 350 SKIDTUBE ASSEMBLY, RH

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MFG. APPR.		D2750	SHEET 3 OF 11
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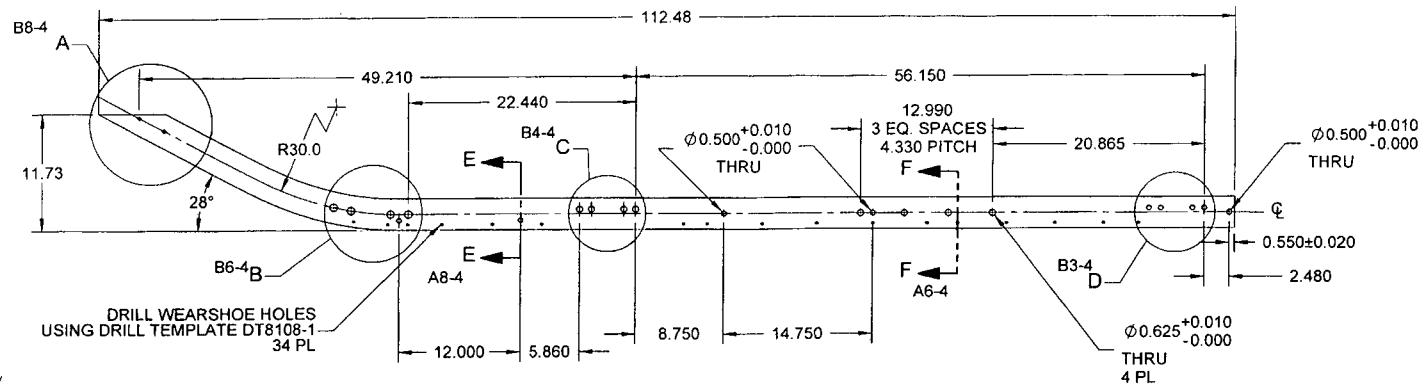
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

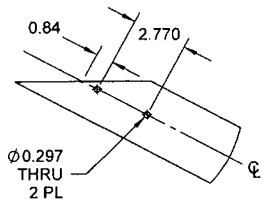
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

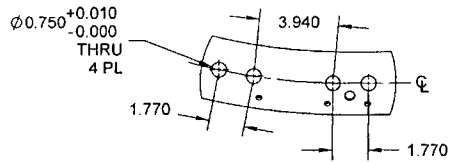
70079



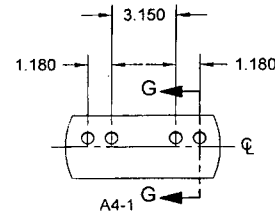
D2750-1 LH SKIDTUBE



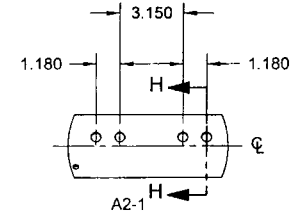
DETAIL A
SCALE 2X



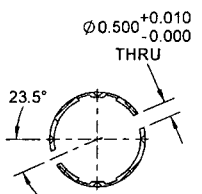
DETAIL B
SCALE 2X



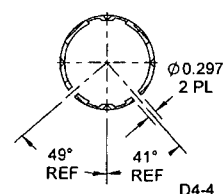
DETAIL C
SCALE 2X



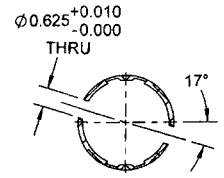
DETAIL D
SCALE 2X



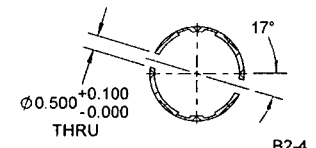
SECTION E-E
SCALE 3X, 2 PL



SECTION F-F
SCALE 3X, 17 PL



SECTION G-G
SCALE 3X, 4 PL



SECTION H-H
SCALE 3X, 4 PL

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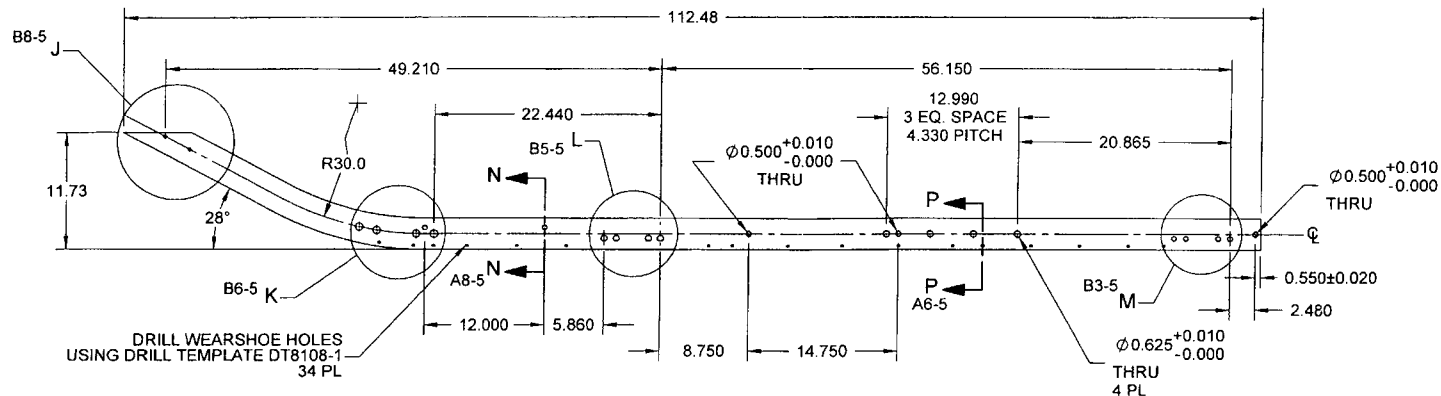
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

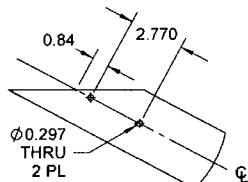
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

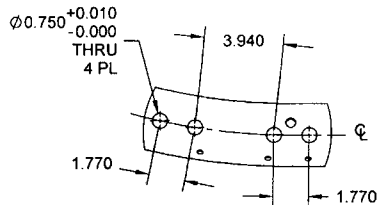
78079



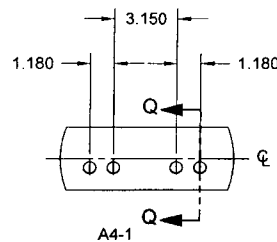
D2750-2 RH SKIDTUBE



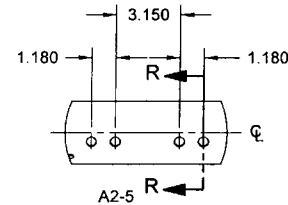
DETAIL J
SCALE 2X



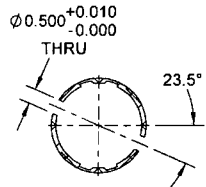
DETAIL K
SCALE 2X



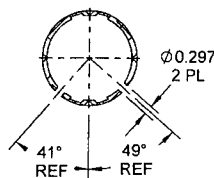
DETAIL L
SCALE 2X



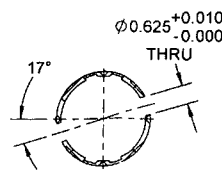
DETAIL M
SCALE 2X



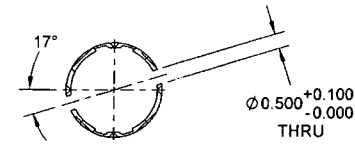
SECTION N-N
SCALE 3X, 2 PL



SECTION P-P
SCALE 3X, 17 PL



SECTION Q-Q
SCALE 3X, 4 PL



SECTION R-R
SCALE 3X, 4 PL

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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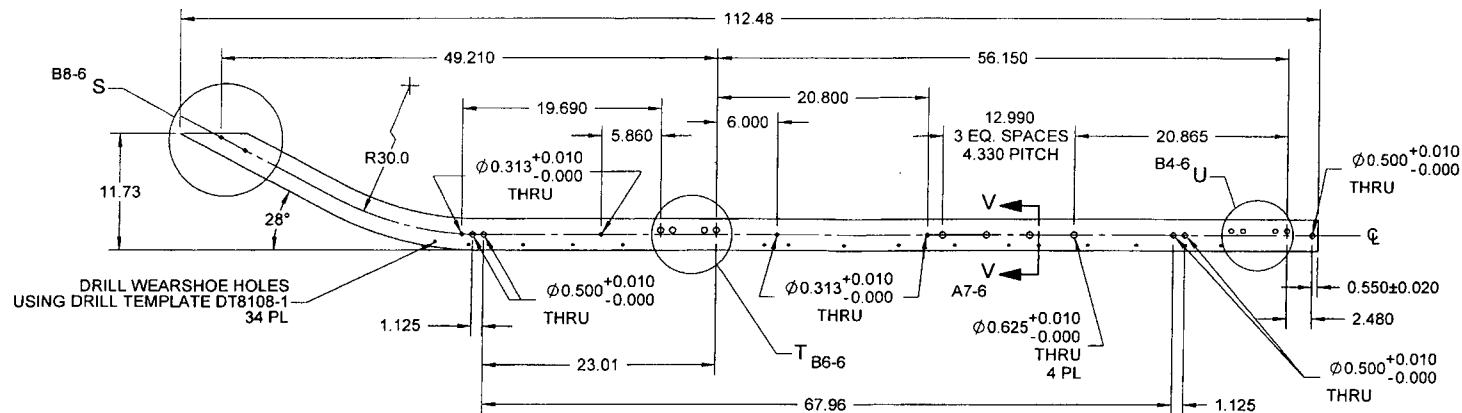
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

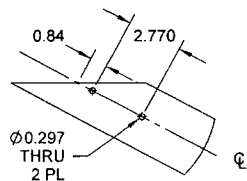
NOTE: Date & initial all entries

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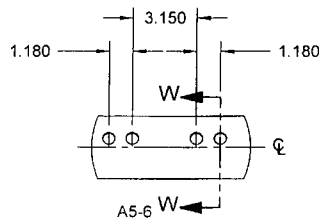
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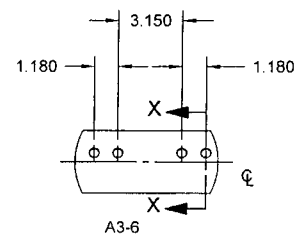
D2750-3 LH SKIDTUBE



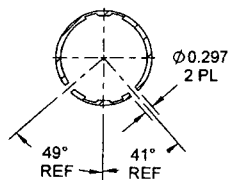
DETAIL S
D8-6
SCALE 2X



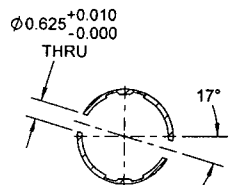
DETAIL T
C5-6
SCALE 2X



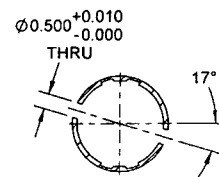
DETAIL U
D3-6
SCALE 2X



SECTION V-V
C4-6
SCALE 3X, 17 PL



SECTION W-W
B6-6
SCALE 3X, 4 PL



SECTION X-X
B4-6
SCALE 3X, 4 PL

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8 7 6 5 4 3 2 1

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

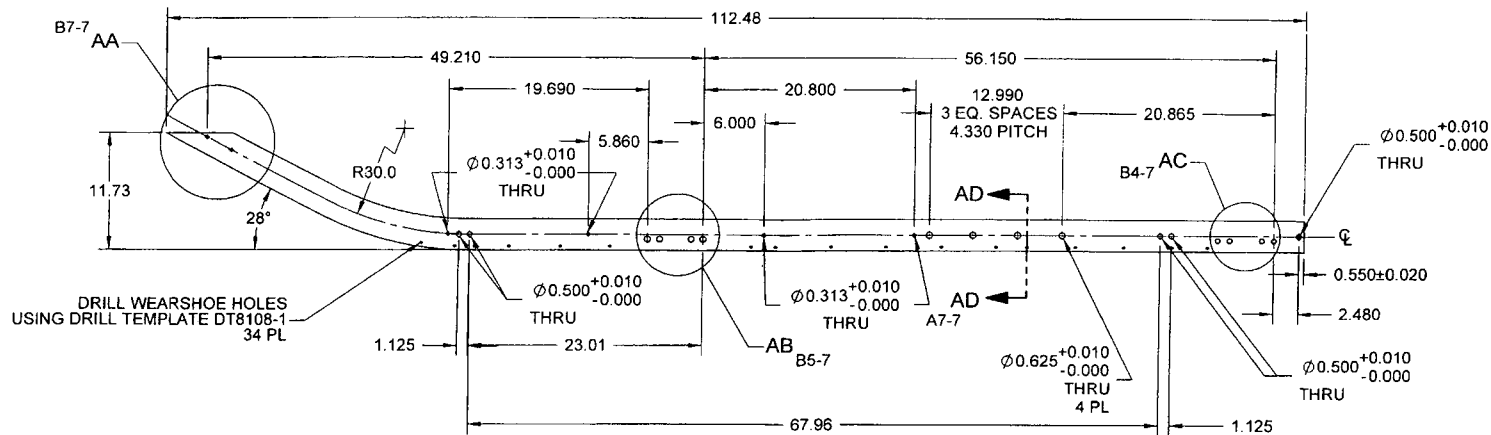
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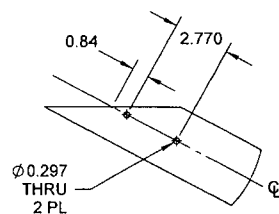
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

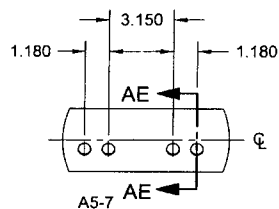
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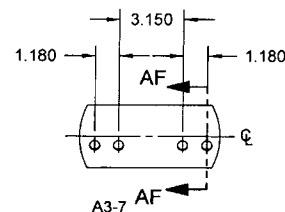
D2750-4 RH SKIDTUBE



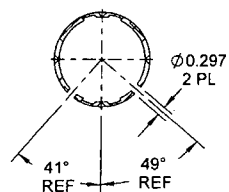
DETAIL AA
SCALE 2X



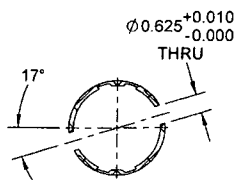
DETAIL AB
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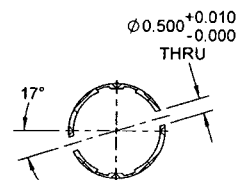
DETAIL AC
SCALE 2X



SECTION AD-AD
SCALE 3X, 17 PL



SECTION AE-AE
SCALE 3X, 4 PL



SECTION AF-AF
SCALE 3X, 4 PL

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

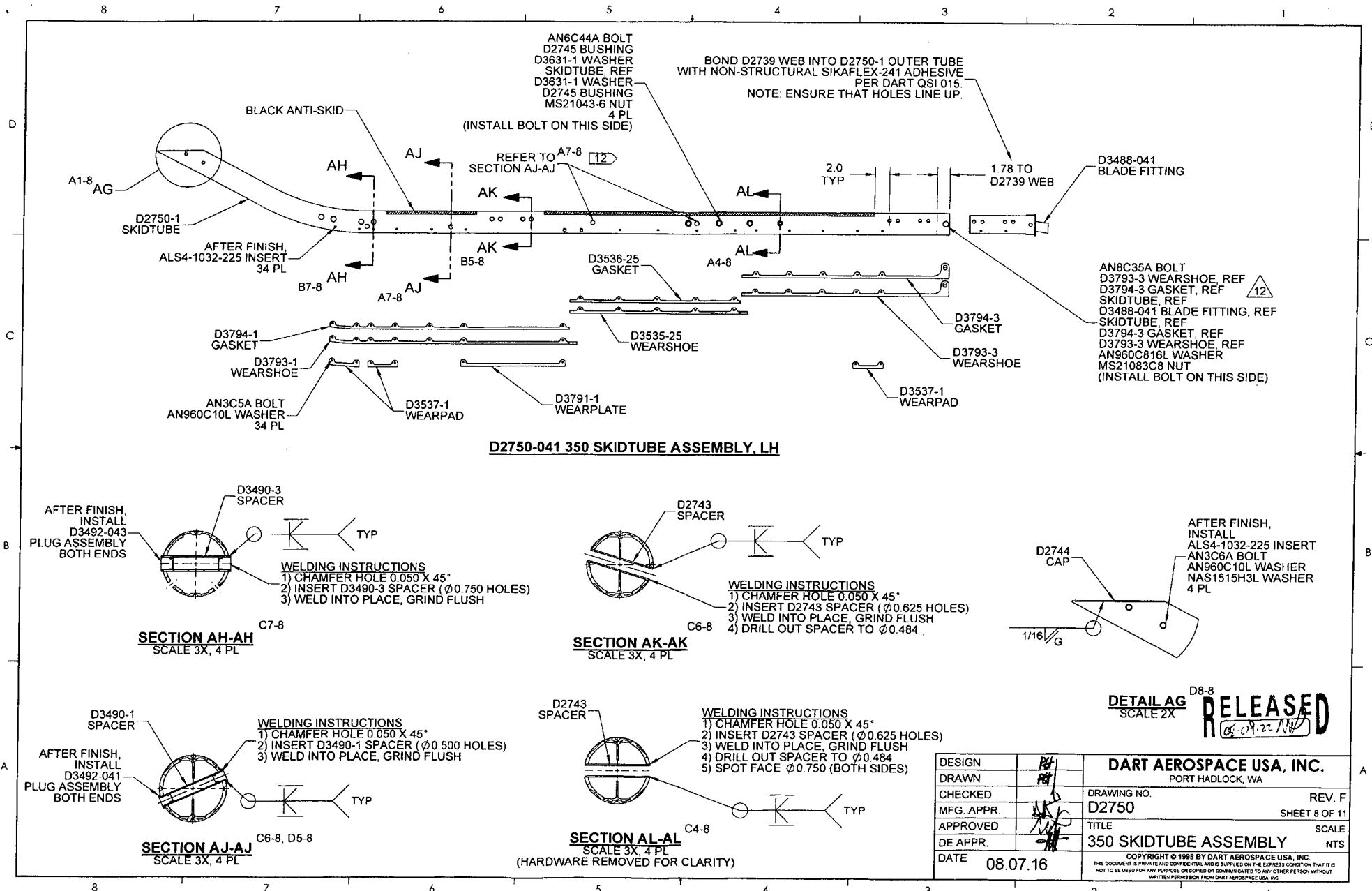
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

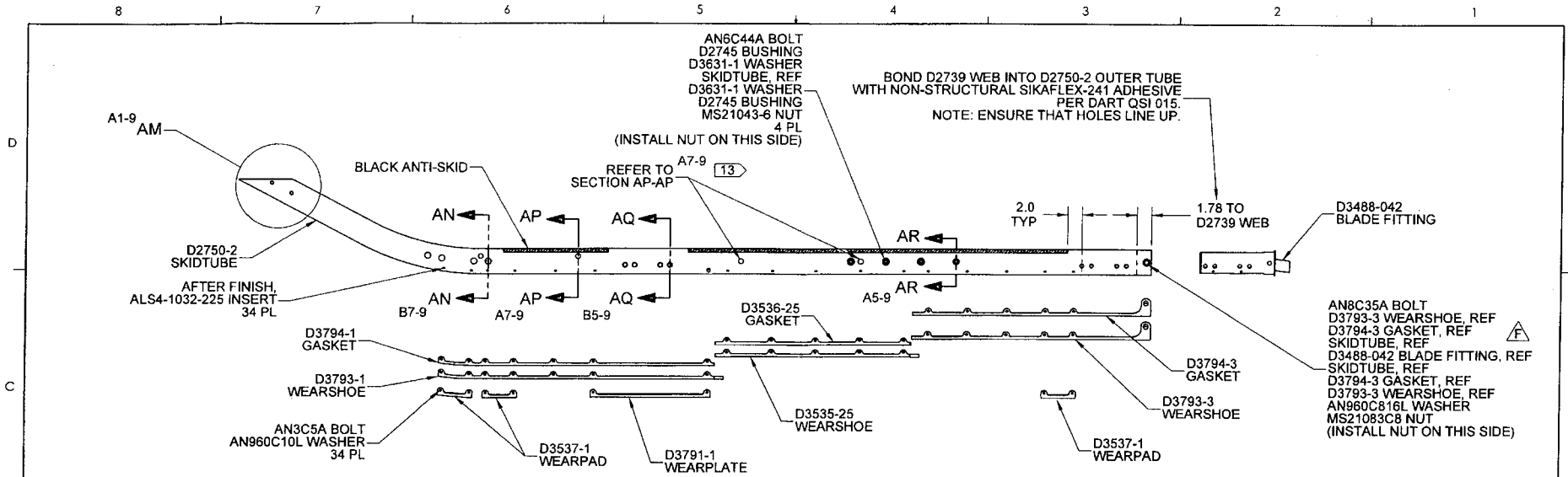
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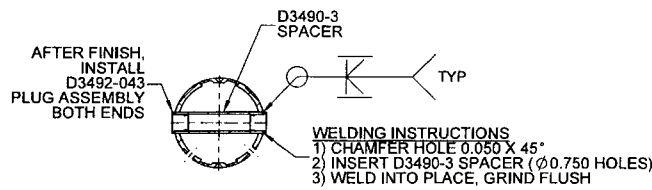
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

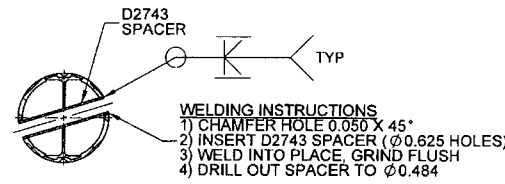
78079



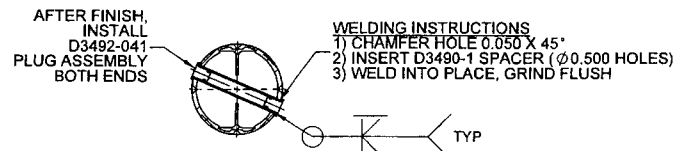
D2750-042 350 SKIDTUBE ASSEMBLY, RH



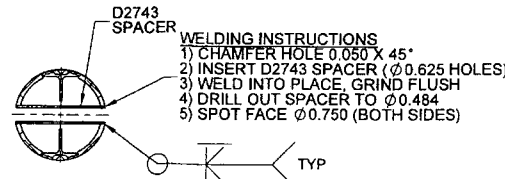
SECTION AN-AN
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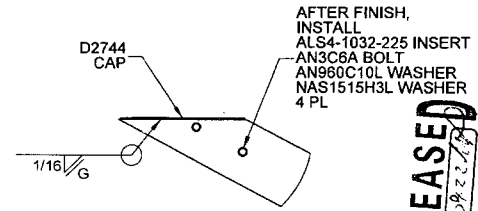
SECTION AQ-AQ
SCALE 3X, 4 PL



SECTION AP-AP
SCALE 3X, 4 PL



SECTION AR-AR
SCALE 3X, 4 PL
(HARDWARE REMOVED FOR CLARITY)



DETAIL AM
SCALE 2X

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20080622

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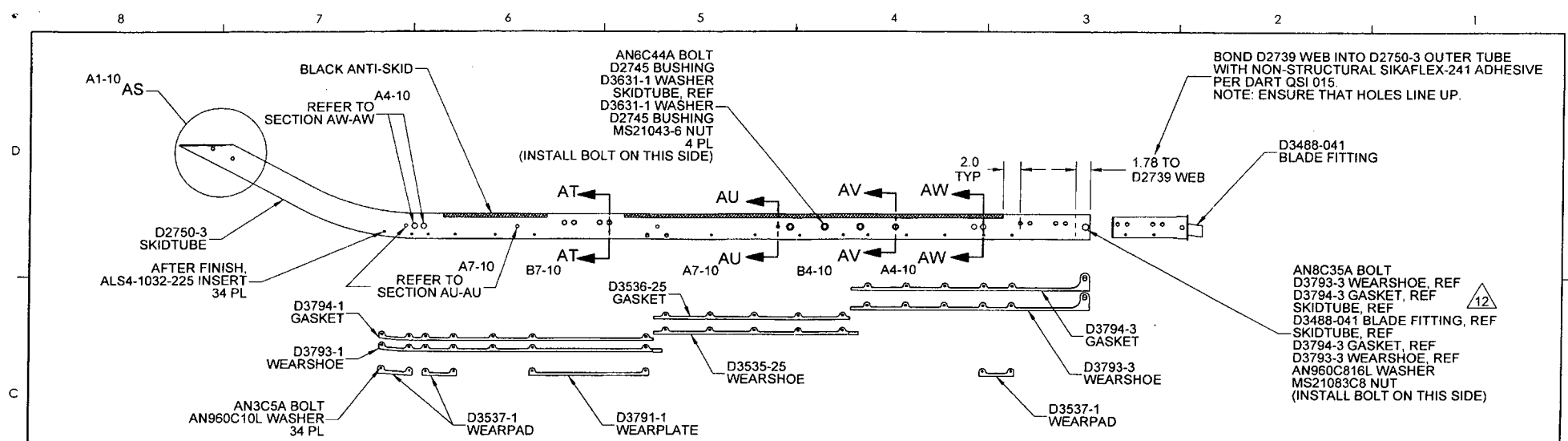
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

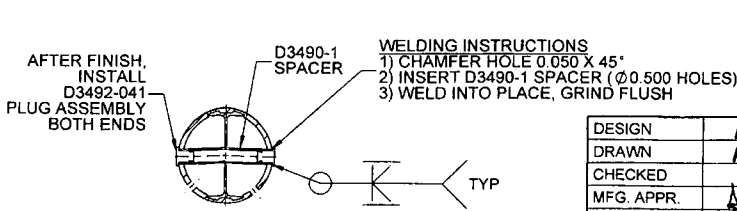
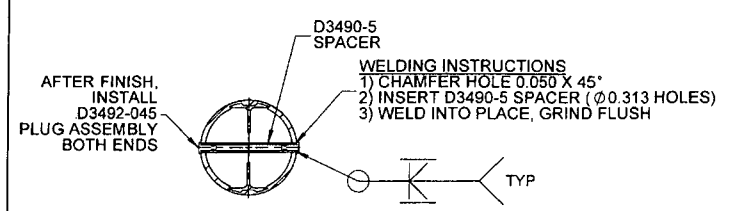
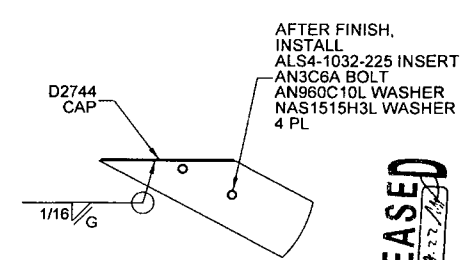
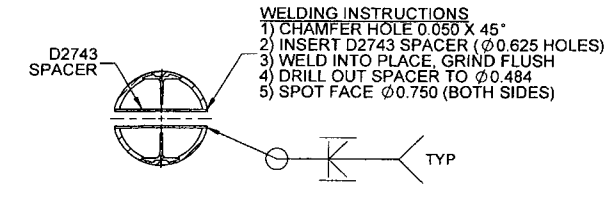
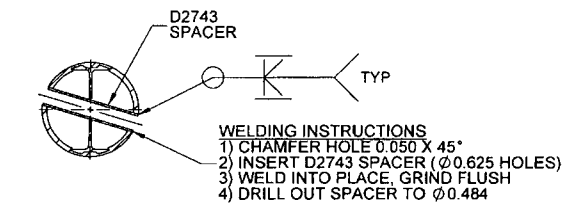
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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D2750-043 350 SKIDTUBE ASSEMBLY, LH



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CHECKED		DRAWING NO. D2750
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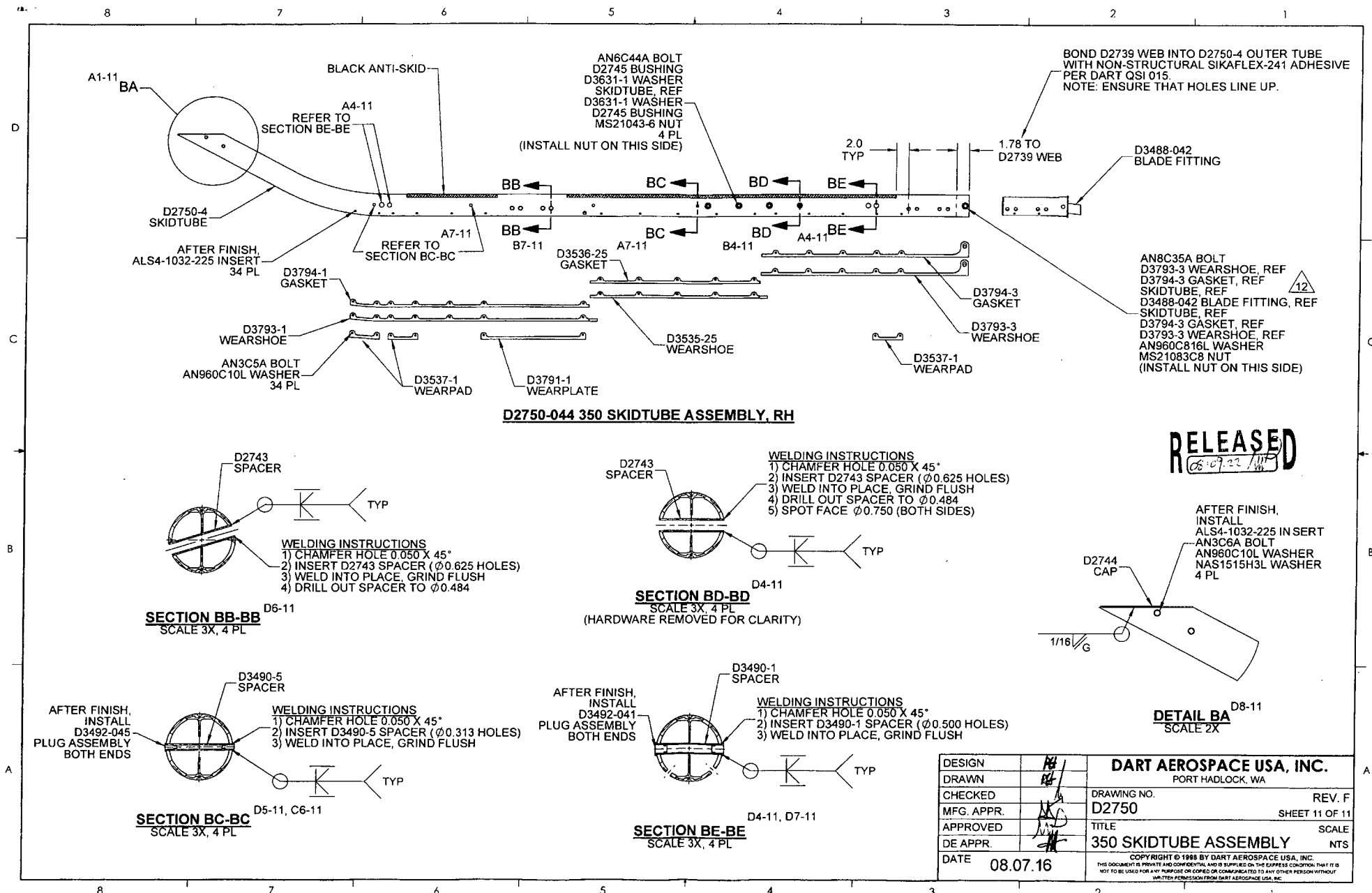
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Dart Aerospace Ltd

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 279

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 77362
Part number: D 350 636 012
Description: 350 Skid tube
Welding Process: Tig ☒ Mig ☐
Base material: Aluminum
Current: AC ☒ DC ☐

TEST REQUIREMENTS AND RESULTS

Visual: pass ☒ fail ☐
Penetration: pass ☒ fail ☐

UNACCEPTABLE

Cracks: pass ☒ fail ☐
Undercut: pass ☒ fail ☐
Pin holes: pass ☒ fail ☐
Overlap (cold lap): pass ☒ fail ☐
Porosity (surface): pass ☒ fail ☐
Coloration: pass ☒ fail ☐

Qualifier Pat Pump Date of Test Coupon 11.12.22

Welder Barclay Elliott Date of Test Coupon 11.12.22

The above named individual is qualified in accordance with AWS D17.1.2001 to weld